
Using Theory to Bridge HCI Communities

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Abstract

The AISHCI and ACMCHI research communities focus on a similar domain of inquiry. However, because they are anchored into distinct scholarly traditions, they are likely to hold different assumptions and to value and employ different approaches to design and operationalize research inquiries. Therefore, the CHI 2018 workshop on bridging HCI communities offers the opportunity of a much-needed discussion about the similarities, the divergences, and the possible synergies between these two communities. The call for paper suggests that rigor, realism, and generalizability are the targets of a three-horned dilemma that HCI researchers face. In this paper, I propose to add theory to the conversation. Theory is central to the scientific endeavor, informing (and constraining) researchers' choices and observations. The aim of this paper is to activate and fuel a dialogue on the theoretical goals, interests, and priorities of each community.

Author Keywords

HCI contributions within terms only; bridging research communities; theory.

ACM Classification Keywords

Human-centered computing: Human computer interaction: HCI theory, concepts and models.

Introduction

This extended abstract aims to initiate a dialogue around the idea of using theory as a vehicle to help bridge the AISHCI and ACMCHI communities. I present the key tenets of this idea as well as its motivation, so that its potential can be discussed among colleagues at the workshop on bridging HCI at CHI 2018.

The paper proceeds as follows. I first define what I mean by theory. Then, I explain the reasons why a focus on theory can be useful to facilitate the development of a common understanding and the identification of possible synergies between the HCI communities. Finally, I present a framework to help examine the potential of using theory as a bridge. The framework is preliminary and relies mostly on the information systems literature. Yet it can be used as a working tool to engage scholars of both communities around the idea of using theory as a bridge.

Defining Theory

Different authors have different perspectives on theories, what they are, and what they are not [e.g., 1,24]. In this communication, I define theory as a multifaceted intellectual artifact that scholars construe to help make sense of phenomena. Some phenomena are easy to relate to and experience (e.g., working, mating, interacting with people) while others situate on a scale that makes is much more unfamiliar to most human beings (e.g., quantum physics – the very micro; astrophysics – the very big). In the case of HCI, the phenomena of interest typically involve one or several individuals (e.g., workers, shoppers) engaging in tasks using information technology. Considering theories as being *multifaceted* implies that they can take several

forms, as I will further illustrate in the last section of this paper.

Reasons for Focusing on Theory

The AISHCI and ACMCHI communities (but also subgroups within these communities, with their own epistemological traditions and sensibilities to different theories and areas of inquiries) may have some congruent but also divergent views and assumptions with respect to the nature and role of theory in their research endeavor. I suggest that it can be useful to discuss these views, to examine whether there are systematic idiosyncrasies, and to investigate what they entail in terms of the research process and the types of contribution each community aims to make.

Theory and theory building are fundamental to the research endeavor [22,25,26]. A key feature of theory is its central role in facilitating a programmatic and cumulative research tradition, which can support reproducibility and, therefore, ultimately, the systematic accretion of valid knowledge [3,21]. In more concrete terms, theory is deemed particularly important and useful for the conduct of the following activities:

- (1) Identifying and describing phenomena of research interest; As Weick [28 p. 17] said: “it takes a complicated sensing device to register a complicated set of events”; in other words, “it takes richness to grasp richness”. Therefore, theories can be useful by providing a vocabulary to help specify and classify the things and events that a researcher chooses to investigate.
- (2) Formulating research problems that are worth studying; As Weber [27] suggests, theory can help understand the deep structure of a problem and

avoid focusing on the shallow. Formulating a research problem is particularly important because it connects directly to the nature and scope of the research's potential contribution. Weber [27 p. iii] even submits that "the choice of research problem—choosing the phenomena we wish to explain or predict—is the most important decision we make as a researcher".

- (3) Framing research models; Theory is also used to define and specify constructs, justify relationships, scope the applicability of the propositions (boundary conditions), and articulate underlying assumptions. All these activities help researchers specify what to focus on and the nature and scope of the knowledge a study could help create.
- (4) Informing methodological choices; Theory can be used to help decide what factors need to be manipulated, measured, or controlled for, and how the empirical procedures should unfold (e.g., do certain factors need to be measured before others).
- (5) Disseminating research findings; Theory is also instrumental as a means to inform how and where to communicate research results and implications.

A Preliminary Framework to Examine the Potential of Using Theory as a Bridge

Our use of theories is important because it influences the outcome of knowledge creation (e.g., the creation of general vs. specific knowledge) in addition to the process (i.e., the four key activities described in the previous section.) In order to help members of the AISHCI and ACMCHI research communities better understand how they and their counterparts use, value, and prioritize theory, I propose a framework that can help characterize theories based on a set of discriminable attributes. For the sake of brevity, I have

focused on five attributes that are common and frequently mentioned in the literature.

The first attribute is derived from Gregor [11], who suggests that a useful means to distinguish between categories of theories is *the objective of the theory*. Is the aim of the researcher to describe things? [e.g., 13] To explain them [e.g., 17]? To make predictions on them [e.g., 6]? To both explain and predict [e.g., 8]? To recommend how to build them [e.g., 18]?

Second, theories can be described according to *what they focus on* [19,20]: the unfolding of a phenomenon (i.e., a process theory) [e.g., 15] or the effect that the variation in "some" properties of "some" things has on other properties of the same of other things (i.e., a variance theory) [e.g., 7].

Third, all theories involve some *degree of abstraction* from the reality they aim to make sense of [14], but some are more precise and applicable to specific contexts (i.e., middle-range theories) [e.g., 10] while others are more abstract and widely applicable (i.e., often called grand theories) [e.g., 9].

Fourth, theories differ on *how they are developed* [23]. Two distinct approaches are (1) deduction, which involves going from generals to particular such as when inferences are derived from assumptions) [e.g., 4], and (2) induction, which relies on going from particulars to general such as when inferences are derived from data/empirical experiences) [e.g., 5].

Finally, some theories focus on single *levels of analysis* [e.g., 2,4] while others span multiple levels [e.g., 5,16]. Figure 1 illustrates the proposed framework.

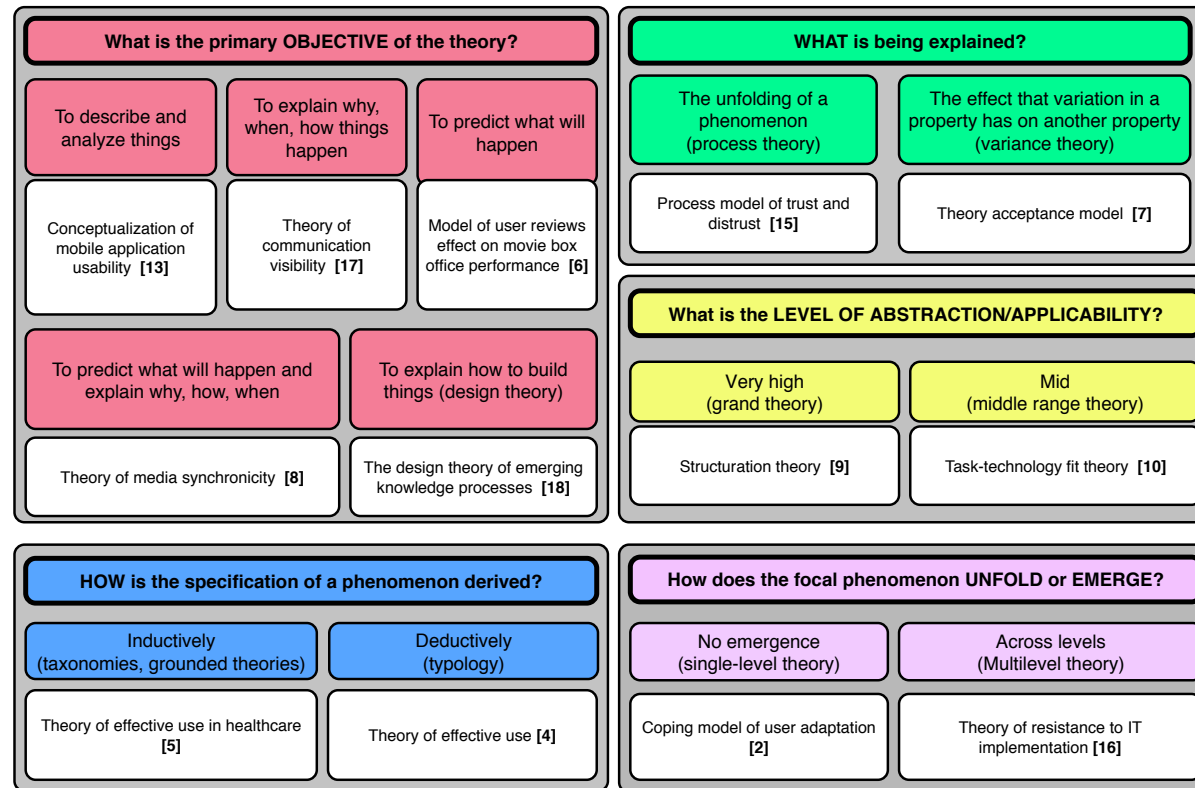


Figure 1: Preliminary Framework to Use Theory as a Vehicle to Bridge HCI Communities

Conclusion

The content and spirit of the present paper are driven by the idea that theory can be a useful vehicle to bridge distinct research communities, for example HCI and behavioral science [12]. The position that I have presented suggests the use of theory as a discussion topic to help bridge the two HCI communities. Its merit will be clearer once it is exposed to colleagues' feedback and criticisms. The framework embodies this

position. Thus, it can be used at the workshop as a means to probe researchers about the relevance, the importance, and the value of the aforementioned attributes to them and to their community (e.g., their key publication outlets). This exercise might reveal the existence of similarities and differences that are not be known or expected.

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